



1743

PATENT

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Assistant Commissioner for Patents, Box Non-Fee Amendment, Washington, D.C. 20231 on December 17, 2002.

William R. Allen December 17, 2002
William R. Allen, Reg. No. 48,389 Date

✓ Reg. for Recm
20
1-12-03

RECEIVED
DEC 27 2002
TC 1700

Applicant:	Jeffrey W. Nichols
Serial No.:	09/963,774
Filed:	September 26, 2001
Group Art Unit:	3629
Examiner:	Kenneth L. Thompson
Title:	TORSIONAL VIBRATION DAMPER
Confirmation No.:	1743
Atty Docket:	EPH-33

Cincinnati, Ohio 45202

December 17, 2002

Attention: Box Non-Fee Amendment
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

RECEIVED

JAN 02 2003

GROUP 3600

RESPONSE UNDER 37 CFR § 1.111

This paper responds to the non-final Official Action mailed October 10, 2002. Claims 1-29 are currently pending. In view of the following remarks, Applicant respectfully submits that this application is in complete condition for allowance and requests reconsideration of the application in this regard.

Applicant notes with appreciation the Examiner's indication of allowable subject matter in claims 2, 9, 11 and 18. However, as the independent claims from which these claims depend are deemed to be in allowable condition, Applicant has elected not to rewrite these claims in independent form as suggested by the Examiner. For the reasons stated below, Applicant respectfully submits that claims 1, 3-8, 10, 12-17 and 19-29 are also in complete condition for allowance.

Rejections of Claims Under 35 U.S.C. § 102

Claims 1, 3-8, 10, 12-17 and 19-29 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,024,120 (Andra). The Examiner contends that Andra shows all the elements of the rejected claims, of which claims 1, 10, 19 and 24 are independent claims. Applicant respectfully disagrees for the reasons set forth below.

The torsional vibration damper of claim 1 includes an insert disposed radially inward from a polymer body, in which the insert includes a support flange projecting radially outward into the polymer body. The support flange operates for preferentially transferring any applied axial force to the insert such that a polymer body surrounding the insert is substantially stress-free.

The Examiner contends that Andra discloses "a support flange (A,B) projecting radially outward into the polymer body." Contrary to the Examiner's contention, Andra does not teach or even suggest a support flange, much less a support flange that projects radially outward into a surrounding polymer body. The

"support flange (A,B)" identified in the Office Action is actually a pair of adhesive surfaces (8, 9) defined by an insert (1) and a plastic flange ring (5), respectively. These surfaces (8, 9) cannot be reasonably construed as a flange under the common definition of "a collar or rim that projects from a pipe, housing, or the like to provide strength, stability, or a place for attaching other parts." Moreover, the two adhesive surfaces (8, 9) are spaced apart and separated at all points about their confronting circumferences by an inner ring (4) of rubber. Because of this separation afforded by inner ring (4), no portion of insert (1) can be reasonably said to project into the plastic flange ring (5). Therefore, Andra does not anticipate claim 1.

In order for a reference to anticipate the invention in a claim, the reference must teach each and every element in the precise arrangement set forth in the claim. If the reference fails to teach even one of the claimed elements, the reference does not and cannot anticipate the claimed invention. In particular, as Andra fails to disclose the projection of the flange into the surrounding polymer body, Andra does not anticipate independent claim 1. Moreover, Andra discloses the adhesive surfaces (8, 9) increase the effective surface area of the insert (1) and flange ring (5), compared with circular surfaces, that prevents tearing of inner ring (4) under normal operating conditions. Andra fails to recognize the problems associated with axial forces directed for removing the damper from a shaft and that the axial force, if not transferred by the flange to the insert, might otherwise damage the polymer body. Therefore, Andra provides no motivation or suggestion for adding flanges to the insert that protrude into the surrounding polymer body. For at least

these reasons, Applicant respectfully submits that independent claim 1 is patentable and requests that the rejection of claim 1, and claims 3-8 depending therefrom, be withdrawn.

Independent claim 10, and claims 12-17 depending therefrom, are patentable for at least the same reasons as independent claim 1. Therefore, Applicant respectfully requests that the rejection of claims 10 and 12-17 be withdrawn.

Independent claim 19 is directed to a torsional vibration damper having a plurality of protrusions extend radially outward from an insert into a surrounding polymer body. The protrusions provide torque-locking structure that mechanically interlocks the polymer body with the insert so that the polymer body resists rotation relative to the insert.

The Examiner contends that Andra discloses "a plurality of protrusions providing torque locking structure." However, the Examiner does not identify, with any specificity, a corresponding structure present in Andra. Applicant submits that Andra does not disclose, teach or even suggest outwardly projecting protrusions that interlock an insert with a surrounding polymer body. No structure in Andra could reasonably be construed as outwardly extending protrusions that extend into the polymer body. In fact, the radially-outermost surface of insert (1) is smooth and free of protrusions. For at least this reason, Applicant respectfully submits that independent claim 19 is patentable and requests that the rejection of claim 19, and claims 20-23 depending therefrom, be withdrawn.

Independent claim 24 is directed to a torsional vibration damper having a polymer body and an insert radially inward of the polymer body in which the polymer body is formed from a polyamide composite having a reinforcing filler. The Examiner asserts that Andra discloses "a polymer body formed of a polyamide (8, 9) composite having a reinforcing filler of a relatively rigid material (4)." Contrary to the Examiner's assertion, the structure labeled with reference numeral (4) in Andra is an inner ring of rubber and the structure identified by reference numerals (8, 9) are surfaces.

Applicant submits that Andra does not teach, disclose or suggest that any portion of the disclosed torsional vibration damper is formed from a polyamide composite. Because Andra fails to teach or disclose this claimed element, Andra does not and cannot anticipate claim 24. The benefits of the invention recited in claim 24 are described in Applicant's specification at page 14, line 6 through page 15, line 16. For at least these reasons, Applicant respectfully submits that independent claim 24 is patentable and requests that the rejection of claim 24, and claims 25-29 depending therefrom, be withdrawn.

Moreover, as the Examiner admits on page 5 of the Office Action that "Andra does not disclose the polymer is a glass reinforced polyamide," the rejection of claims 25 and 27 as anticipated by Andra is improper. For at least this additional reason, Applicant respectfully requests that this rejection of claims 25 and 27 be withdrawn.

Rejections of Claims Under 35 U.S.C. § 103

Claims 6, 7, 15, 16, and 25-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra in view of U.S. Patent No. 5,112,282 (Patterson). Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Andra in view of U.S. Patent No. 4,899,323 (Fukahori et al.). Each of these rejected claims is patentable for at least the same reasons as the corresponding independent claim from which each depends. Therefore, Applicant respectfully requests that the rejection of claims 6, 7, 15, 16, 21, 22 and 25-28 be withdrawn.

Each claim from among this group of rejected claims is patentable for at least one additional reason. Each of the specific rejections are addressed individually below.

Claims 6 and 15

The Examiner asserts that “Andra discloses the polymer” but “does not disclose the polymer is a glass reinforced polyamide.” The Examiner contends that it would have been obvious to one of ordinary skill in the art to modify the polymer disclosed in Andra to be a glass reinforced polyamide as taught by Patterson to improve tensile strength. Applicant respectfully disagrees with the Examiner's contention for the reasons set forth below.

Patterson does not recognize the benefits derived from constructing the polymer body of a torsional vibration damper from a reinforced polyamide. Specifically, Patterson is not directed to a torsional vibration damper and does not

contemplate the problems arising from operation of a torsional vibration damper at the ambient, operating temperatures found in an internal combustion engine. See Applicant's Specification at page 14, lines 11-17. Therefore, there is no suggestion or motivation present in either Andra or Patterson to combine their teachings to solve a problem that is not appreciated by either reference. As a result, one of ordinary skill in the art would not modify the torsional vibration damper of Andra in view of Patterson because neither reference is concerned with high temperature operation of a torsional vibration damper.

The prior art has failed to provide a suggestion or motivation to combine Patterson with Andra. It would be impermissible hindsight to pick elements from the prior art to yield a torsional vibration damper which allegedly renders the claimed torsional vibrational damper obvious. It is improper to use the claimed invention as a template for picking and choosing references to combine in order to render the invention obvious. As such, the prior art fails to establish a *prima facie* case of obviousness. For at least this reason, Applicant submits that claims 6 and 15 are allowable for this additional reason and that the rejection of these claims should be withdrawn.

Assuming, *arguendo*, that one combined Andra and Patterson, the resulting torsional vibration damper would not include all the elements of claims 6 and 15. Specifically, neither Andra nor Patterson discloses any structure for a torsional vibration damper that is formed from a reinforced polyamide, much less a polymer body coupled with an insert of a torsional vibration damper in which the polymer body

is formed from reinforced polyamide. Thus, even if the two references were combined, the resulting torsional vibration damper would not include every element of claims 6 and 15. For at least this additional reason, the prior art does not establish a *prima facie* case of obviousness, and Applicant submits that claims 6 and 15 are patentable and that the rejection should be withdrawn.

Applicant further submits that *In re Lasher* does not provide supporting rationale. Specifically, this court decision stands for the proposition that the selection of a known material based on its suitability for its intended use may support a *prima facie* obviousness determination. Specifically, the inventive cosmetic container formed of plastic in *In re Lasher* was rejected over a reference that taught a similar cosmetic container also made of plastic. See MPEP § 2144.07. However, the facts of *In re Lasher* are not sufficiently similar to those in the present application. A key distinction with regard to the rationale expressed for rejecting claims 6 and 15 is that Applicant has provided ample evidence of the benefits derived from the selection of a specific polymer, namely reinforced polyamide, for constructing the polymer body of a torsional vibration damper. Applicant does not purport to be the first to reinforce polyamide with a filler. However, the use of filler-reinforced polyamide in the polymer body of a torsional vibration damper would not normally require only ordinary skill in the art and would not be considered a routine expedient. Because the Applicant has demonstrated the criticality of reinforced polyamide as a material for the polymer

body, it is not appropriate for the Examiner to rely solely on *In re Lasher* as the rationale to support the obviousness rejection.

Claims 7, 16 and 28

The Examiner asserts that “Andra discloses the polymer” but “does not disclose the polymer is mechanically stable at a temperature of at least about 230 degrees F.” The Examiner contends that it would have been obvious to one of ordinary skill in the art to modify the polymer disclosed in Andra to be mechanically stable at a temperature of at least about 230°F as taught by Patterson to improve performance characteristics at high temperature. Applicant respectfully disagrees with the Examiner’s contention for the reasons set forth below.

Patterson does not recognize the benefits derived from constructing the polymer body of a torsional vibration damper from a polymer that is stable at a temperature of at least about 230°F. Specifically, Patterson is not directed to a torsional vibration damper and does not contemplate the problems arising from operation of a torsional vibration damper at the ambient, operating temperatures found in an internal combustion engine. See Applicant’s Specification at page 14, lines 11-17. Therefore, there is no suggestion or motivation present in either Andra or Patterson to combine their teachings to solve a problem that is not appreciated by either reference. As a result, the Examiner has failed to make a *prima facie* case of obviousness. For at least this reason, Applicant submits that claims 7, 16 and 28 are

allowable for this additional reason and that the rejection of these claims should be withdrawn.

Assuming, *arguendo*, that one combined Andra and Patterson, the resulting torsional vibration damper would not include all the elements of claims 7, 16 and 28. Specifically, neither Andra nor Patterson discloses any structure for a torsional vibration damper formed from a polymer stable at a temperature of at least about 230°F, much less a polymer body coupled with an insert of a torsional vibration damper in which the polymer body is formed from a polymer stable at a temperature of at least about 230°F. Therefore, even if the two references were combined, the resulting torsional vibration damper would not include every element of claims 7, 16 and 28. For at least this additional reason, the Examiner has failed to make a *prima facie* case of obviousness and Applicant submits that claims 7, 16 and 28 are patentable and that the rejection should be withdrawn.

As discussed above, Applicant submits that the Examiner's reliance upon *In re Lasher* as a source of supporting rationale is misplaced. A key distinction with regard to the rationale expressed for rejecting claims 7, 16 and 28 is that Applicant has provided ample evidence of the benefits derived from the selection of a specific polymer, namely a polymer that is stable at a temperature of at least about 230°F, for constructing the polymer body of a torsional vibration damper. Applicant does not purport to be the first to create a polymer composition that is stable at a temperature of at least about 230°F. However, the use of a polymer that is stable at a temperature of at least about 230°F in the polymer body of a torsional vibration

damper would not normally require only ordinary skill in the art and would not be considered a routine expedient. Because the Applicant has demonstrated the criticality of reinforced polyamide as a material for the polymer body, it is inappropriate for the Examiner to rely solely on *In re Lasher* as the rationale to support the obviousness rejection.

Claims 25 and 26

Claims 25 and 26 are patentable for the same or similar additional reasons as claims 6 and 15. Specifically, Patterson has been improperly applied as a secondary reference that teaches use of a reinforced polyamide, and with regard to these specific claims, polyamide reinforced with a glass filler or glass fibers. In contrast, Patterson provides no motivation or suggestion for using a glass-reinforced polymer in the polymer body of a torsional vibration damper. Therefore, the Examiner has failed to make a *prima facie* case of obviousness. For at least this reason, Applicant submits that claims 25 and 26 are allowable for this additional reason and that the rejection of these claims should be withdrawn.

Claim 27

In the rejection of claim 27, it is asserted that Patterson teaches "use of a polyamide composite based on a nylon-copolymer." However, Patterson does not disclose or teach a polyamide composite based upon a nylon-copolymer nor does Patterson provide a motivation or suggestion to use such a polymer type in a

torsional vibration damper. Again there is no *prima facie* case of obviousness. For at least this reason, Applicant submits that claim 27 is allowable and that the rejection of this claim should be withdrawn.

Claims 21 and 22

The Examiner asserts that Fukahori et al. teaches "use of protrusions (3) that are cylindrical bosses or rectangular tabs." Fukahori et al. is directed to an anti-seismic device for machines and building structures capable of protecting an object from vibration during an earthquake. Because Fukahori et al. is not directed to a torsional vibration damper, this secondary reference can not contemplate the problems arising from operation of a torsional vibration damper in an internal combustion engine. As a result, Fukahori et al. does not recognize the benefits derived from coupling the insert and polymer body of a torsional vibration damper with either cylindrical bosses or rectangular tabs. See Applicant's Specification at page 14, lines 11-17. Therefore, there is no suggestion or motivation present in either Fukahori et al. to combine its teaching with Andra to solve a problem with torsional vibration dampers. Accordingly, Applicant submits that claims 21 and 22 are allowable and that the rejection of these claims should be withdrawn.

CONCLUSION

Applicant has made a bona fide effort to respond to each and every requirement set forth in the Office Action. In the event that any issues remain outstanding, the Examiner is invited to contact the undersigned to expedite issuance of this application.

Applicant does not believe fees are due in connection with filing this communication. If, however, additional fees are necessary as a result of this communication, the Commissioner is hereby authorized to charge any under-payment or fees associated with this communication or credit any over-payment to Deposit Account No. 23-3000.

Respectfully submitted,

WOOD, HERRON & EVANS, L.L.P.

By: William R. Allen
William R. Allen, Ph.D.
Reg. No. 48,389

2700 Carew Tower
Cincinnati, Ohio 45202
(513) 241-2324